

What is claimed is:

1. A pattern forming method, comprising the steps of:
forming a first resist pattern containing a photo-acid
generating agent on a substrate;

irradiating light to an exposed surface of the first
resist pattern;

coating a resist film containing a cross-linking agent,
which reacts with acid, on the substrate after irradiation of
the light in a state where it covers the first resist pattern;

causing a cross-linking reaction at an interface between
the first resist pattern and the resist film to grow a
cross-linked layer; and

forming a second resist pattern made of the cross-linked
layer and the first resist pattern.

2. A pattern forming method according to claim 1, wherein
the light is one selected from the group consisting of ArF
excimer laser light and KrF excimer laser light.

3. A pattern forming method according to claim 1, wherein
a base resin of a resist material forming the first resist
pattern containing the photo-acid generating agent is one
selected from the group consisting of methacrylic resin and
cycloolefin resin.

4. A pattern forming method according to claim 1, wherein
a base resin of the resist film containing the cross-linking
agent, which reacts with the acid, is one selected from the

group consisting of polyvinyl alcohol system resin, polyacrylic acid system resin, and polyvinyl acetal system resin.